PROPOSED ADOPTION OF BACTERIA PROVISIONS AND A VARIANCE POLICY

Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California

Amendment to the Water Quality Control Plan for Ocean Waters of California

Item 5
August 7, 2018
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Summary

- Project background and timeline
- Bacteria Provisions and Variance Policy
- Comments, revisions, and responses
- Questions
- Public comment

Background

- U.S. EPA 2012 recommended criteria for recreation (REC-1)
- Basin Plans and Ocean Plan inconsistent
- Proposed Bacteria Provisions:
  - Based on U.S. EPA's 2012 recommendations
  - Utilize best available science
  - Consistent objectives and implementation approaches
- Variance Policy
  - Established in 2015 by U.S. EPA at 40 CFR § 131.14

Timeline

- **2014 - 2017:** Focus group meetings and scoping
- **July 2017:** Staff Workshop
- **August 2017:** State Water Board public hearing
- **January 2018:** Draft documents distributed
- **July 2018:** Revised draft documents distributed

Components of the Bacteria Provisions

- Bacteria water quality objectives for fresh and saline waters
- Beneficial use definition: Limited Water Contact Recreation (LREC-1)
- Implementation approaches
- Water Quality Standards Variance Policy

REC-1 Bacteria Objectives

Applicable Waters	Objective Elements	Estimated Illness Rate: 32/1,000	
	Magnitude		
	Indicator	6-week GM	STV
All waters where the salinity is equal to or less than 1 ppth 95% or more of the time	*E. coli*	100cfu/100mL	320cfu/100mL
All waters where the salinity is greater than 1 ppth more than 5% of the time	Enterococci	30cfu/100mL	110cfu/100mL

- Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE) Plan – E.coli & enterococci
- Ocean Plan – enterococci
- Geometric Mean (GM)
  - Calculated every six-weeks
  - Rolling
- Statistical Threshold Value (STV)
  - Calculated every calendar month
  - Shall not be exceeded by more than 10% of samples collected

Estimated Illness Rate

- Above the proposed geometric mean, there is increased risk of illness
- Below proposed geometric mean, the risk of illness blends into the ambient illnesses rate
- Illness Rate 32 per 1,000
- Risk of illness 3.2% per person
- Lower illness rate than 1986 criteria

REC-1 Bacteria Objectives

- Supersedes numeric REC-1 basin plan bacteria objectives
- Do not supersede narrative and site-specific objectives
- Existing TMDLs for bacteria remain in effect

Limited Water Contact Recreation (LREC-1) Beneficial Use Definition

"Uses of water that support limited recreational activities involving body contact with water, where activities are predominantly ***limited by physical conditions*** *and, as a result,* ***body contact with water and ingestion of water is infrequent or insignificant.****"*

- Only applicable to ISWEBE waters
- No proposed designations

Implementation Approaches

- ISWEBE and Ocean Plan
  - Reference system/antidegradation
  - Natural source exclusion
- ISWEBE Plan:
  - Temporary high-flow suspension of REC-1
  - Seasonal suspension of REC-1
  - Provisions for designation of Limited Water Contact Recreation (LREC-1)
- Not requirements: implemented through basin planning actions

Water Quality Standards Variance Policy

- Temporary suspension of water quality objective
- Identifies U.S. EPA's 2015 federal variance rule
- Does not add to or limit
- Explains existing state law

Comments, Revisions, and Responses

Ocean Plan fecal coliform objective:

- Fecal coliform may be a better indicator during certain conditions
- Staff reviewed data
- Retain existing Ocean Plan fecal coliform objective

Ocean Plan Fecal Coliform Objective

Indicator	Magnitude	
	30-day GM	SSM
Fecal Coliform	200/100mL	400/100mL

Geometric Mean

- Calculated every 30-days

Single Sample Maximum

- The maximum value not to be exceeded in any single sample

Comments, Revisions, and Responses

Ocean Plan Water Quality Objectives

Enterococci

Indicator	Estimated Illness Rate (NGI): 32/1,000	
	Magnitude	
	6-week GM	STV
Enterococci	30cfu/100mL	110cfu/100mL

Geometric Mean (GM)

- Calculated every six-weeks
- Rolling

Statistical Threshold Value (STV)

- Calculated every calendar month
- Static
- Shall not be exceeded by more than 10 percent of samples collected

NGI: 32 illnesses per 1,000 Recreators

Fecal Coliform

Indicator	Magnitude	
	30-day GM	SSM
Fecal Coliform	200/100mL	400/100mL

Geometric Mean

- Calculated every 30-days

Single Sample Maximum

- The maximum value not to be exceeded in any single sample

Comments, Revisions, and Responses

Lahontan Region's existing numeric objective:

- Commenters requested clarification on proposed vs. existing objective
- Applies to all waters, not specific to REC-1 uses
- Will not be superseded
- Staff Report revised

Lahontan Region's Objective

Indicator	30-day Log Mean	Maximum
Fecal Coliform	20/100mL	40/100mL

Lake Tahoe's proposed site-specific objective:

- Draft documents included a site-specific objective Lake Tahoe
- Based on a translation of the existing fecal coliform objective to E.coli
- Translation deemed inappropriate
- Site-specific objective for Lake Tahoe removed

Comments, Revisions, & Responses

North Coast Region's existing fecal coliform objective for REC-1 uses:

- Commenters requested to retain existing fecal coliform citing concerns that the proposed objective not as protective
- Existing objective is:
  - Related to protection of high quality waters
  - Not related to a specific risk of illness
- Numeric objective will be superseded
- Narrative objective will not be superseded

North Coast Region's Objective

Indicator	Geometric Mean	Single Sample Maximum
Fecal Coliform	50/100mL	400/100mL

Comments, Revisions, & Responses

Reference system/antidegradation and natural source exclusion approaches

- Allowed within context of TMDL
- Commenters requested TMDL alternative option
- A TMDL provides rigorous framework
- No established process for TMDL alternatives
- TMDL alternative option not included

RECOMMENDATION

Adoption of the Revised Proposed Final Bacteria Provisions

Questions?

ADDITIONAL SLIDES FOLLOW

North Coast Bacteria Objectives

Narrative: The bacteriological quality of waters of the North Coast Region shall not be degraded beyond natural background levels.

- Will **not** be superseded by the Bacteria Provisions

Numeric: In no case shall coliform concentrations in waters of the North Coast Region exceed the following:

- In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml (State Department of Health Services).

  - Will be superseded by the Bacteria Provisions.
  - Could be used later by the North Coast Region as a basis for establishing natural background levels to enforce application of the narrative objective for the support of other beneficial uses like Tribal Tradition and Culture (CUL) where activities may lead to increased ingestion and risk of illness may occur.

Illness Rate Translation

- Definition of illness changed from 1986 to 2012 to omit the requirement for fever
  - 1986 Highly Credible Gastrointestinal Illness (HCGI)
  - 2012 NEEAR Gastrointestinal Illness from (NGI)
- Expanded “cases” of illness by a factor of 4.5

Applicable Waters	1986 (HCGI)	2012 (NGI)
Fresh	8/1,000	36/1,000
Marine	36/1,000	85.5/1,000

Title 17 Bacteriological Standards

§ 7958. Bacteriological Standards.

(a) The minimum protective bacteriological standards for waters adjacent to public beaches and public water-contact sports areas shall be as follows:

(1) Based on a single sample, the density of bacteria in water from each sampling station at a public beach or public water contact sports area shall not exceed:

(A) 1,000 total coliform bacteria per 100 milliliters, if the ratio of fecal/total coliform bacteria exceeds 0.1; or

(B) 10,000 total coliform bacteria per 100 milliliters; or

(C) 400 fecal coliform bacteria per 100 milliliters; or

(D) 104 enterococcus bacteria per 100 milliliters.

(2) Based on the mean of the logarithms of the results of at least five weekly samples during any 30-day sampling period, the density of bacteria in water from any sampling station at a public beach or public water contact sports area, shall not exceed:

(A) 1,000 total coliform bacteria per 100 milliliters; or

(B) 200 fecal coliform bacteria per 100 milliliters; or

(C) 35 enterococcus bacteria per 100 milliliters.

When any waters adjacent to a public beach fail to meet any of the standards described above, the local health officer shall post the beach to restrict access. Weekly testing is required from April 1 to October 31 if all of the following apply: The beach is visited by more than 50,000people annually; and The beach is located in an area adjacent to a storm drain that flows in the summer.

Impact on other Programs and Regulations

Title 17 beach notification levels:

- The State Water Board does not have the authority to amend Title 17, as these are Department of Public Health regulations.
- Agencies regulated under Title 17 will continue to sample and report on total coliform, fecal coliform, and enterococcus.
- Data collected by these agencies including exceedances of the Title 17 levels and associated beach closures, will continue to be used as evidence to support listing decisions under Sections 3.11 and 4.11 of the Listing Policy.

Waters currently on the 303(d) List:

- Would be subject to reevaluation under Section 4 of the Listing Policy due to the change in water quality objectives for REC-1 use support.
- There will be new listings and delistings as a result of the change in bacteria objectives.
  - Potential delisting of waters listed solely on the basis of total and fecal coliform and REC-1 support.
  - Potential listings of waters because the objectives are more stringent for enterococcus and *E.coli*

Water Quality Objectives: Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE)

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		Magnitude	
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- Geometric Mean (GM)
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  - Shall not be exceeded by more than 10 percent of samples collected
- Colony Forming Units (CFU)
- National Epidemiological and Environmental Assessment of Recreational Water Gastrointestinal Illness (NGI) Illness Rate
  - 32 illnesses per 1,000 Recreators

Warning Signs

The warning sign with the yellow and black border is posted near storm drains, creeks, and rivers to advise the public of potential contamination from urban runoff.

The warning sign with the red and black border is posted when a violation of the Title 17 bacteriological standards occurs.

The yellow closure sign is posted when a release of raw sewage affects waters adjacent to a public beach.